

Appl. No. 10/815,561
Amdt. Dated October 11, 2005
Reply to Office action of July 13, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A ~~process~~ method comprising:
forming an imprinted polymer disposed upon a substrate under conditions to expose a bond pad on the substrate by local flow of the polymer, wherein a recess is formed in the polymer;
~~mating~~ attaching a solder bump ~~with~~ to the bond pad; and
curing the polymer.
2. (currently amended) The ~~process~~ method of claim 1, further ~~including~~ comprising reflowing the solder bump at a process time selected from before curing the polymer, after curing the polymer, and simultaneously with curing the polymer.
3. (currently amended) The ~~process~~ method of claim 1, ~~following forming an imprinted polymer the process further including~~ comprising filling a solder flux into the recess.
4. (currently amended) The ~~process~~ method of claim 1, ~~following forming an imprinted polymer the process further including~~ comprising filling a solder flux into the recess by a process ~~including~~ comprising pushing the solder flux.
5. (currently amended) The ~~process~~ method of claim 1, wherein forming an imprinted polymer ~~includes~~ comprises forming the imprinted polymer with a convex over-all profile.
6. (currently amended) The ~~process~~ method of claim 1, wherein forming an imprinted polymer ~~includes~~ comprises forming the imprinted polymer with a convex over-all profile, and the process further ~~including~~ comprising:
~~mating~~ attaching a microprocessor ~~with~~ to the solder bump.

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7. (currently amended) The ~~process~~ method of claim 1, wherein forming an imprinted polymer ~~includes~~ comprises forming the imprinted polymer with a convex over-all profile, and the process further ~~including~~ comprising:
mating attaching a microprocessor with to the solder bump, wherein ~~mating~~ includes attaching comprises at least partially flattening the convex over-all profile.
8. (currently amended) The ~~process~~ method of claim 1, wherein forming an imprinted polymer ~~includes~~ comprises forming a contoured recess.
9. (currently amended) The ~~process~~ method of claim 1, wherein forming an imprinted polymer ~~includes~~ comprises forming a contoured recess, and wherein ~~mating~~ attaching the solder bump with to the bond pad includes ~~mating~~ attaching a complementary-contoured solder bump in the recess.
10. (currently amended) The ~~process~~ method of claim 1, further ~~including~~ comprising attaching a microprocessor with the solder bump.
11. (currently amended) The ~~process~~ method of claim 1, wherein the polymer is formed upon the substrate by depositing a prepolymer selected from a resin, an epoxy, and combinations thereof.
12. (currently amended) The ~~process~~ method of claim 1, wherein curing the polymer forms a cured polymer film that includes a film-to-substrate thickness ratio in a range from about one-tenth to about one-half the thickness of the substrate.
13. (currently amended) The ~~process~~ method of claim 1, wherein the polymer is formed upon the substrate by depositing a prepolymer selected from a resin, an epoxy, and combinations thereof, and wherein curing the polymer forms a cured polymer film including a film-to-substrate thickness ratio selected from about one-tenth, one-eighth, one-fifth, one-fourth, one-third, and one-half the thickness of the substrate.
14. (currently amended) The ~~process~~ method of claim 1, wherein the polymer is a resin that ~~includes~~ comprises a filler selected from silica, ceria, thoria, zirconia and combinations thereof.

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15. (currently amended) The ~~process~~ method of claim 1, wherein the polymer is a resin that ~~includes~~ comprises a filler selected from silica, ceria, thoria, zirconia and combinations thereof, and wherein the filler is selected from a spherical particle, an aspherical particle, a fiber, and combinations thereof.

16. (currently amended) The ~~process~~ method of claim 1, wherein the polymer is a resin that ~~includes~~ comprises a filler in a concentration range from about 30% to about 90%.

17. (currently amended) A ~~process~~ method comprising:
placing a polymer film over a substrate;
imprinting the polymer film under conditions to expose a bond pad on the substrate by local flow of the polymer film, wherein a recess is formed in the polymer film;
~~mating~~ attaching a solder bump ~~with to~~ the bond pad; and
curing the polymer film.

18. (currently amended) The ~~process~~ method of claim 17, further ~~including~~ comprising reflowing the solder bump at a process time selected from before curing the polymer film, after curing the polymer film, and simultaneously with curing the polymer film.

19. (currently amended) The ~~process~~ method of claim 17, ~~following forming an imprinted polymer film the process~~ further ~~including~~ comprising filling a solder flux into the recess.

20. (currently amended) The ~~process~~ method of claim 17, ~~following forming an imprinted polymer film the process~~ further ~~including~~ comprising filling a solder flux into the recess by a process ~~including~~ comprising pushing the solder flux.

21. (currently amended) The ~~process~~ method of claim 17, wherein forming an imprinted polymer film ~~includes~~ comprises forming a contoured recess.

22. (currently amended) The ~~process~~ method of claim 17, wherein forming an imprinted polymer ~~includes~~ comprises forming a contoured recess, and wherein ~~mating~~ attaching the solder bump ~~with to~~ the bond pad ~~includes mating~~ comprises attaching a complementary-contoured solder bump in the recess.

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23. (currently amended) The ~~process method~~ of claim 17, further ~~including mating~~ comprising attaching a microprocessor ~~with to~~ the solder bump.

24. (currently amended) The ~~process method~~ of claim 17, wherein placing the polymer film upon the substrate ~~includes~~ comprises placing a polymer film selected from a resin, an epoxy, and combinations thereof.

25. (currently amended) The ~~process method~~ of claim 17, wherein curing the polymer film forms a cured polymer film that ~~includes~~ comprises a film-to-substrate thickness ratio in a range from about one-tenth to about one-half the thickness of the substrate.

26. (currently amended) The ~~process method~~ of claim 17, wherein placing the polymer film upon the substrate ~~includes~~ comprises placing a polymer film selected from a resin, an epoxy, and combinations thereof, and wherein curing the polymer film forms a cured polymer film ~~including~~ comprising a film-to-substrate thickness ratio selected from about one-tenth, one-eighth, one-fifth, one-fourth, one-third, and one-half the thickness of the substrate.

27.-29 (Canceled)

30. (currently amended) A ~~process method~~ comprising:

forming an imprinted polymer disposed upon a substrate under conditions to expose a bond pad on the substrate by local flow of the polymer, wherein a recess is formed in the polymer;

filling a solder flux into the recess;

~~mating attaching~~ a solder bump ~~with to~~ the bond pad; and

curing the polymer, wherein curing the polymer forms a cured polymer film that ~~includes~~ comprises a film-to-substrate thickness ratio in a range from about one-tenth to about one-half the thickness of the substrate.

31. (currently amended) The ~~process method~~ of claim 30, wherein forming an imprinted polymer ~~includes~~ comprises forming the imprinted polymer with a convex over-all profile, and the process further ~~including~~ comprising:

~~mating attaching~~ a microprocessor ~~with to~~ the solder bump.

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32. (currently amended) The ~~process~~ method of claim 30, wherein forming an imprinted polymer ~~includes~~ comprises forming a contoured recess.